ORIENTAL MOTOR CATALOGUE

A

Gearheads

Features and Types of Gearheads

Oriental Motor gearheads are specially designed for easy and direct attachment to our **AC** motors that have a pinion shaft. The gearhead reduces the motor speed which increases the torque. A large number of gear ratios are available for many applications.

Parallel Shaft Type

Right-Angle Type

Parallel Shaft Type Gearheads

Application	Gearhead Model	Gear Ratios	Decimal Gearheads
Normal Load	**2GN□K**	**3～180** 20 ratios	**2GN10XK**
	3GN□K		**3GN10XK**
	4GN□K		**4GN10XK**
	5GN□K		**5GN10XK**
Heavy Load	**5GU□KB**	**3～180** 20 ratios	**5GU10XKB**
	5GU□KBH	**50～180** 8 ratios	—
	BH6G2-□	**3～150** 11 ratios	—
High Speed (**FBLⅡ**, **AXH**, **HBL** Series)	**FBL575CY-□**	**5～200** 8 ratios	—
	FBL5120CY-□		—
	AXH230KC-□		—
	AXH450KC-□		—
	HBL560N-□		—
	HBL5100N-□		—

- Enter the gear ratio in the box (□) within the model number.
- Specifications for gearheads with motors can be found on the individual motor's page.
- Refer to Gearhead Selection on page A-20 for further detail on the gear ratios.

Right Angle Type Gearheads

Gear Frame Size	Type of shaft	Gearhead Model	Gear ratios	Maximum Permissible Torque
80mmsq. for 25W	Hollow shaft	**4GN□RH**	**3～150** 11 ratios	8N·m
	Solid shaft	**4GN□RA**		
90mmsq. for 40W	Hollow shaft	**5GN□RH**		10N·m
	Solid shaft	**5GN□RA**		
90mmsq. for 60W and 90W	Hollow shaft	**5GU□RH**		20N·m
	Solid shaft	**5GU□RA**		

- Enter the gear ratio in the box (□) within the model name.
- Features and specifications for right-angle gearheads are shown on page A-180.

Right-Angle Gearheads

Right-Angle gearheads are flange-mounted gearheads that use worm gears and special helical gears. They allow motors to be installed at right angles to the axis of equipment such as belt conveyors. They are available in hollow shaft RH and solid shaft RA models and are ideal for keeping equipment compact.

Features

- Right angle gearheads with mounting sizes of 80 mm (for 25W) or 90 mm (for 40 W) are available for **GN** pinion and mounting sizes of 90 mm (for 60 or 90 W) are available for **GU** pinion. They can be connected to all Oriental Motor AC motors with the exception of **BH**, **FBLⅡ**, **HBL**, **FPW** series.
- The output shaft is perpendicular to the motor shaft, so the motor can be installed perpendicular to the axis being driven.
- Eleven available models span gear ratios are available from 3 : 1 to 150 : 1,offering tremendous selection. The optimum gear ratio can be selected just as with ordinary gearheads. The maximum permissible torques are also the same as for ordinary gearheads.
- Hollow shaft gearheads allow additional space savings and simpler mechanism designs since they do not require couplings for mounting. Usually, hollow shaft gearheads are locked with a torque arm when mounted so the gearhead does not rotate from the reactive force of the load. When mounted with a torque arm, no centering is needed, so it is faster to mount the gearhead on the device.

Product Number Code

5 GU 25 R H

Type of shaft
H : Hollow type
A : Solid type

Gear Ratio

R : Right Angle Gearhead

GN : **GN** pinion
GU : **GU** pinion

Gearhead Frame Size
4 : 80mmsq.
5 : 90mmsq.

Types

Type of shaft	Model
Hollow shaft	**4GN3RH～4GN150RH**
	5GN3RH～5GN150RH
	5GU3RH～5GU150RH
Solid shaft	**4GN3RA～4GN150RA**
	5GN3RA～5GN150RA
	5GU3RA～5GU150RA

Output Torque of Gearmotor

The output torque when a gearhead is directly connected is calculated as follows :

- **Torque**……$T_G = T_M \times i \times \eta$

T_G : Output Torque at Gear Shaft [N·m]
T_M : Motor Torque [N·m]
i : Gear Ratio of Gearhead
η : Gearhead Efficiency

■Specifications

Gearhead Model	Gear Ratio	Maximum Permissible Torque N·m	Permissible Overhung Load N		Permissible Thrust Load N
			10mm from shaft end	20mm from shaft end	
4GN□RH	**3～150**	8	250✻	220✻	100
5GN□RH	**3～150**	10	350✻	310✻	200
5GU□RH	**3～150**	20	560✻	500✻	250
4GN□RA	**3～15**	8	100	150	100
	25～150		200	300	
5GN□RA	**3～15**	10	250	350	200
	25～150		300	450	
5GU□RA	**3～7.5**	20	400	500	250
	12.5～25		450	600	
	30～150		500	700	

✻Overhung load values for hollow shaft models are distances from the flange mounting surface.
● Enter the gear ratio in the box (□) within the model name.
Note : Unlike most worm gear mechanisms, the right-angle gear does not have self-locking capabilities.

■Calculating permissible overhung load for hollow shaft models

When the end of the shaft being driven is supported as in the figure below, calculate the permissible overhung load using the following equations.
(This mechanism is the most demanding in terms of overhung load.)

●4GN□RH

$$\text{Permissible overhung load } W\,[\text{N}] = \frac{59.5}{59.5+Lp} \times 295\,[\text{N}]\text{✻}$$

✻ 295〔N〕: Permissible overhung load at flange mounting surface

●5GN□RH

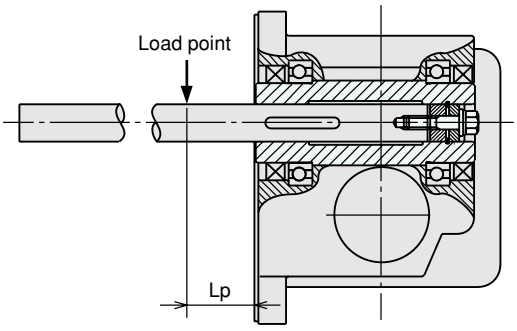
$$\text{Permissible overhung load } W\,[\text{N}] = \frac{70}{70+Lp} \times 400\,[\text{N}]\text{✻}$$

✻ 400〔N〕: Permissible overhung load at flange mounting surface

●5GU□RH

$$\text{Permissible overhung load } W\,[\text{N}] = \frac{68.5}{68.5+Lp} \times 645\,[\text{N}]\text{✻}$$

✻ 645〔N〕: Permissible overhung load at flange mounting surface



Lp〔mm〕: Distance from flange mounting surface to overhung load point

■Gearhead Efficiency

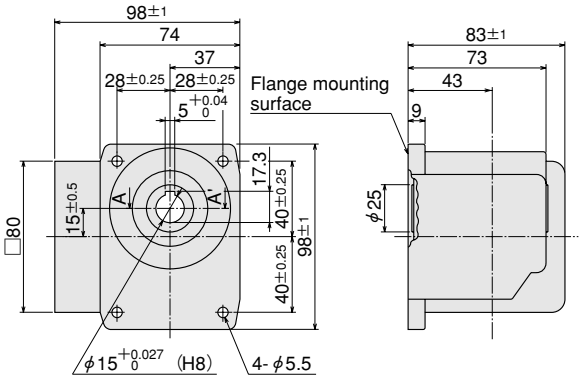
The permissible torques shown on the following page cover most motor combinations. For motor combinations not covered, use the efficiency value in the table below for your calculations.
When making a selection, remember that the transfer efficiency at startup is lower than at the rated speed.

Gearhead Model \ Gear Ratio		3	5	7.5	12.5	15	25	30	50	75	100	150
4GN□RH	Rating	40%		50%	60%							
	Start up	40%		50%	54%							
5GN□RH	Rating	50%		68%			60%					
	Start up	50%		60%			54%					
5GU□RH	Rating	50%		68%				60%				50%
	Start up	50%		60%				54%				45%
4GN□RA	Rating	50%			60%							
	Start up	50%			54%							
5GN□RA	Rating	68%					60%					
	Start up	60%					54%					
5GU□RA	Rating	68%						60%				50%
	Start up	60%						54%				45%

Dimensions (Scale 1/4, Unit＝mm)

Hollow shaft type

4GN□RH Mass : 1.6kg



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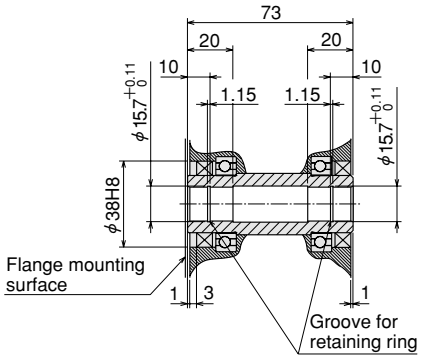
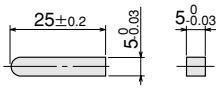
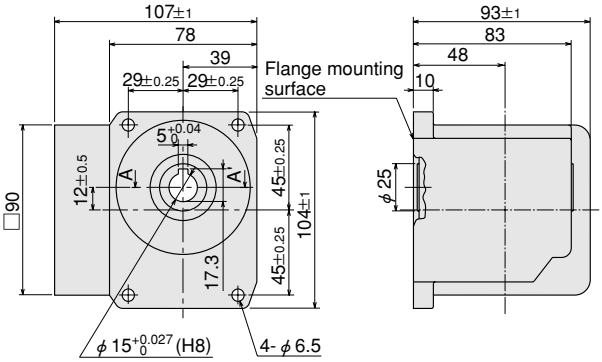


Key (Unit=mm)
(The key is provided with the gearhead.)



5GN□RH Mass : 2.0kg



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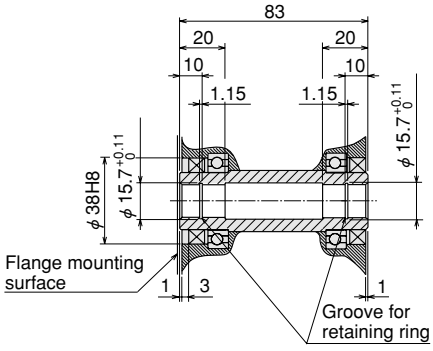
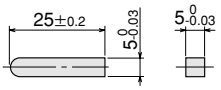
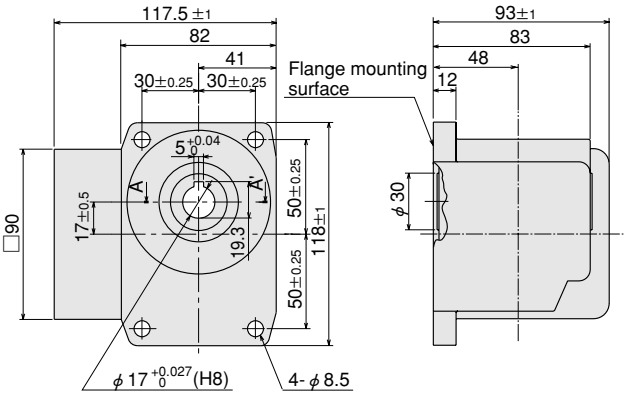


Key (Unit=mm)
(The key is provided with the gearhead.)



5GU□RH Mass : 2.5kg



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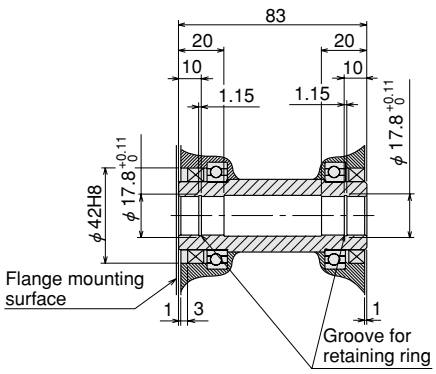
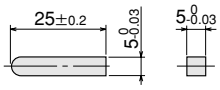
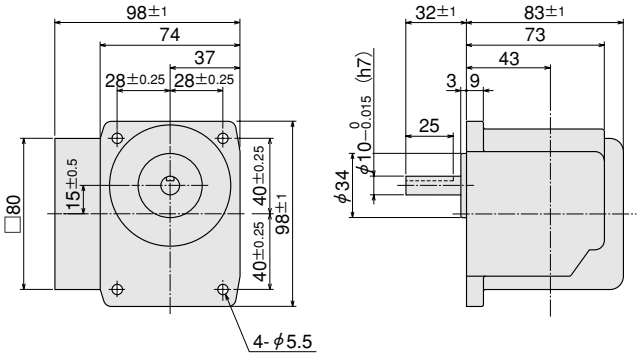


Key (Unit=mm)
(The key is provided with the gearhead.)

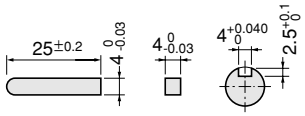


●Solid shaft type

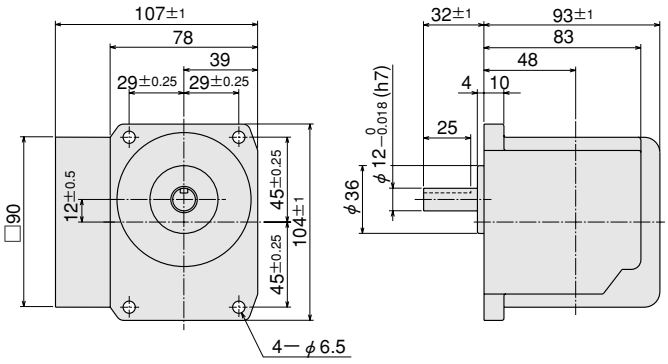
●4GN□RA Mass : 1.6kg



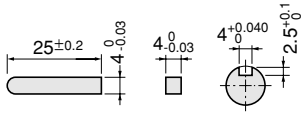
●**Key and Key Slot** (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



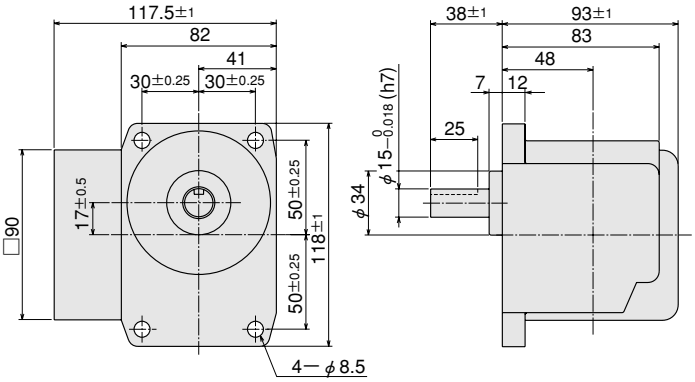
●5GN□RA Mass : 2.0kg



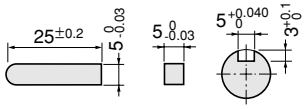
●**Key and Key Slot** (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



●5GU□RA Mass : 2.5kg



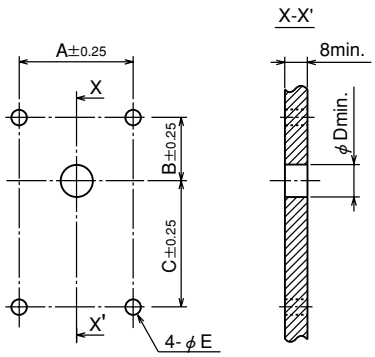
●**Key and Key Slot** (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



●Dimensions of gearhead mount

Allow at least 8mm for the thickness of the mounting plate and use screws of appropriate length.

Unit = mm



Unit = mm

Type	Model	A	B	C	φD	φE
Hollow shaft	**4GN□RH**	56	25	55	φ15	φ5.5
	5GN□RH	58	33	57	φ15	φ6.5
	5GU□RH	60	33	67	φ17	φ8.5
Solid shaft	**4GN□RA**	56	25	55	φ35	φ5.5
	5GN□RA	58	33	57	φ37	φ6.5
	5GU□RA	60	33	67	φ35	φ8.5

Enter the gear ratio in the box (□) within the model name.

Installing for Hollow Shaft Models

Example of Mounting the Load

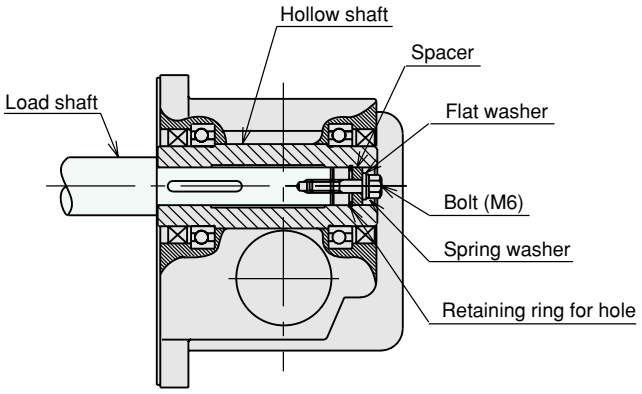
The diagrams below show how to mount loads depending on the shape of the shaft. Hollow shafts are finished to an inner diameter tolerance of H8 and machined with a key groove for mounting the load shaft. The recommended tolerance for the load shaft is h7. Use the key provided with the product by fastening it to the shaft. Apply a coating of molybdenum disulfide or similar grease to the inner diameter of the load shaft to prevent binding. Recommended load shaft dimensions are shown below.

Unit = mm

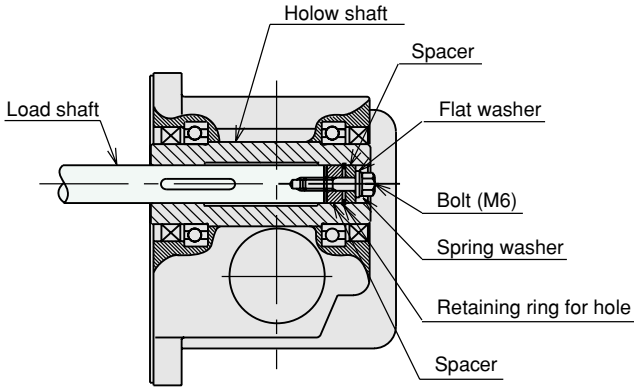
Model	Inner diameter of hollow-shaft [H8]	Recommended load shaft diameter [h7]
4GN□RH	$\phi 15^{+0.027}_{0}$	$\phi 15^{0}_{-0.018}$
5GN□RH	$\phi 15^{+0.027}_{0}$	$\phi 15^{0}_{-0.018}$
5GU□RH	$\phi 17^{+0.027}_{0}$	$\phi 17^{0}_{-0.018}$

Enter the gear ratio in the box (□) within the model name.

Stepped-down shafts



Straight load shafts



Note : If the bolt extends out more than 4 mm from the end of the hollow shaft, no safety cover can be installed. (RH model hollow shaft gearheads include safety covers.)

Gearmotor — Torque Table

- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1600r/min) by the gear ratio. The actual speed is 2 ~ 20% less than the listed value, depending on the size of the load.
- The efficiency of the gear assembly at startup is lower than the rating, so output torque is lower.
- All output shafts rotate opposite to the direction of motor shaft rotation.

Induction Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4IK25GN-CWE / 4GN□RH	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.14	0.24	0.45	0.81	0.97	1.6	1.9	3.2	4.9	6.5	8
5IK40GN-CWE / 5GN□RH	Rating	0.45	0.75	1.5	2.6	3.1	4.5	5.4	9	10	10	10
	Start up	0.3	0.5	0.9	1.5	1.8	2.7	3.2	5.4	8.1	10	10
5IK60GU-CWE / 4GU□RH	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.48	0.8	1.4	2.4	2.9	4.8	5.2	8.6	13	17	20
5IK90GU-CWE / 5GN□RH	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	0.68	1.1	2	3.4	4.1	6.8	7.3	12	18	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4IK25GN-CWE / 4GN□RA	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.18	0.3	0.45	0.81	0.97	1.6	1.9	3.2	4.9	6.5	8
5IK40GN-CWE / 5GN□RA	Rating	0.61	1	1.5	2.6	3.1	4.5	5.4	9	10	10	10
	Start up	0.36	0.6	0.9	1.5	1.8	2.7	3.2	5.4	8.1	10	10
5IK60GU-CWE / 5GU□RA	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.58	0.96	1.4	2.4	2.9	4.8	5.2	8.6	13	17	20
5IK90GU-CWE / 5GU□RA	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	0.81	1.4	2	3.4	4.1	6.8	7.3	12	18	20	20

Reversible Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWE / 4GN□RH	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.19	0.32	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWE / 5GN□RH	Rating	0.47	0.79	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
	Start up	0.41	0.68	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWE / 5GU□RH	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.71	1.2	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWE / 5GU□RH	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	0.9	1.5	2.7	4.5	5.4	9	9.7	16	20	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWE / 4GN□RA	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.24	0.4	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWE / 5GN□RA	Rating	0.64	1.1	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
	Start up	0.49	0.81	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWE / 5GU□RA	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.85	1.4	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWE / 5GU□RA	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	1.1	1.8	2.7	4.5	5.4	9	9.7	16	20	20	20

●Electromagnetic Brake Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWME/ 4GN□RH	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.19	0.32	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWME/ 5GN□RH	Rating	0.47	0.79	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
	Start up	0.41	0.68	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWME/ 5GU□RH	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.71	1.2	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWME/ 5GU□RH	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	0.9	1.5	2.7	4.5	5.4	9	9.7	16	20	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWME/ 4GN□RA	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	Start up	0.24	0.4	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWME/ 5GN□RA	Rating	0.64	1.1	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
	Start up	0.49	0.81	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWME/ 5GU□RA	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	Start up	0.85	1.4	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWME/ 5GU□RA	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	Start up	1.1	1.8	2.7	4.5	5.4	9	9.7	16	20	20	20

●Speed Control Motors **MSS•W Series Induction Type**

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
MSS425-402YE/ 4GN□RH	1200r/min	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	90r/min	0.06	0.1	0.19	0.38	0.45	0.75	0.9	1.5	2.3	3	4.5
	Start up	0.15	0.25	0.47	0.84	1	1.7	2	3.4	5.1	6.8	8
MSS540-402YE/ 5GN□RH	1200r/min	0.48	0.8	1.6	2.7	3.3	4.8	5.8	9.6	10	10	10
	90r/min	0.098	0.16	0.33	0.55	0.66	0.98	1.2	2	2.9	3.9	5.9
	Start up	0.29	0.48	0.86	1.4	1.7	2.6	3.1	5.1	7.7	10	10
MSS560-502YE/ 5GU□RH	1200r/min	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.3	0.5	1	1.7	2	3.4	3.6	6	9	12	15
	Start up	0.53	0.88	1.6	2.6	3.2	5.3	5.7	9.5	14	19	20
MSS590-502YE/ 5GU□RH	1200r/min	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.39	0.65	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.69	1.2	2.1	3.5	4.1	6.9	7.5	12	19	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
MSS425-402YE/ 4GN□RA	1200r/min	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	90r/min	0.075	0.13	0.19	0.38	0.45	0.75	0.9	1.5	2.3	3	4.5
	Start up	0.19	0.31	0.47	0.84	1	1.7	2	3.4	5.1	6.8	8
MSS540-402YE/ 5GN□RA	1200r/min	0.65	1.1	1.6	2.7	3.3	4.8	5.8	9.6	10	10	10
	90r/min	0.13	0.22	0.33	0.55	0.66	0.98	1.2	2	2.9	3.9	5.9
	Start up	0.34	0.57	0.86	1.4	1.7	2.6	3.1	5.1	7.7	10	10
MSS560-502YE/ 5GU□RA	1200r/min	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.41	0.68	1	1.7	2	3.4	3.6	6	9	12	15
	Start up	0.63	1.1	1.6	2.6	3.2	5.3	5.7	9.5	14	19	20
MSS590-502YE/ 5GU□RA	1200r/min	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.53	0.88	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.83	1.4	2.1	3.5	4.1	6.9	7.5	12	19	20	20

Speed Control Motors MSS•W Series Reversible Type

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	50	75	100	150
MSS425-412YE/ 4GN□RH	1200r/min	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	90r/min	0.12	0.2	0.38	0.75	0.9	1.5	1.8	3	4.5	6	8
	Start up	0.18	0.3	0.56	1	1.2	2	2.4	4.1	6.1	8	8
MSS540-412YE/ 5GN□RH	1200r/min	0.48	0.8	1.6	2.7	3.3	4.8	5.8	9.6	10	10	10
	90r/min	0.22	0.36	0.74	1.2	1.5	2.2	2.6	4.4	6.5	8.7	10
	Start up	0.39	0.65	1.2	2	2.3	3.5	4.2	7	10	10	10
MSS560-512YE/ 5GU□RH	1200r/min	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.38	0.63	1.3	2.1	2.6	4.3	4.5	7.5	11	15	19
	Start up	0.66	1.1	2	3.3	4	6.6	7.1	12	18	20	20
MSS590-512YE/ 5GU□RH	1200r/min	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.39	0.65	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.81	1.4	2.4	4.1	4.9	8.1	8.7	15	20	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	50	75	100	150
MSS425-412YE/ 4GN□RA	1200r/min	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
	90r/min	0.15	0.25	0.38	0.75	0.9	1.5	1.8	3	4.5	6	8
	Start up	0.23	0.38	0.56	1	1.2	2	2.4	4.1	6.1	8	8
MSS540-412YE/ 5GN□RA	1200r/min	0.65	1.1	1.6	2.7	3.3	4.8	5.8	9.6	10	10	10
	90r/min	0.3	0.49	0.74	1.2	1.5	2.2	2.6	4.4	6.5	8.7	10
	Start up	0.47	0.78	1.2	2	2.3	3.5	4.2	7	10	10	10
MSS560-512YE/ 5GU□RA	1200r/min	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.51	0.85	1.3	2.1	2.6	4.3	4.5	7.5	11	15	19
	Start up	0.79	1.3	2	3.3	4	6.6	7.1	12	18	20	20
MSS590-512YE/ 5GU□RA	1200r/min	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.53	0.88	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.97	1.6	2.4	4.1	4.9	8.1	8.7	15	20	20	20

Speed Control Motors ES Type / Induction Motor

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	36	50	75	100	150
4IK25RGN-CWE 4GN□RH ES02	1200r/min	0.22	0.36	0.68	1.4	1.6	2.7	3.2	3.9	5.4	8	8	8
	90r/min	0.06	0.1	0.19	0.38	0.45	0.75	0.9	1.1	1.5	2.3	3	4.5
	Start up	0.14	0.24	0.45	0.81	0.97	1.6	1.9	2.3	3.2	4.9	6.5	8
5IK40RGN-CWE 5GN□RH ES02	1200r/min	0.48	0.8	1.6	2.7	3.3	4.8	5.8	6.9	9.6	10	10	10
	90r/min	0.11	0.18	0.36	0.6	0.71	1.1	1.3	1.5	2.1	3.2	4.2	6.3
	Start up	0.3	0.5	0.9	1.5	1.8	2.7	3.2	3.9	5.4	8.1	10	10
5IK60RGU-CWE 5GU□RH ES02	1200r/min	0.74	1.2	2.5	4.2	5	8.3	8.8	10.6	14.7	20	20	20
	90r/min	0.26	0.43	0.87	1.4	1.7	2.9	3.1	3.7	5.1	7.7	10.2	12.8
	Start up	0.48	0.8	1.4	2.4	2.9	4.8	5.2	6.2	8.6	13	17.3	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	36	50	75	100	150
4IK25RGN-CWE 4GN□RA ES02	1200r/min	0.3	0.5	0.75	1.5	1.8	3	3.6	4.3	6	8	8	8
	90r/min	0.08	0.13	0.19	0.38	0.45	0.75	0.9	1.1	1.5	2.3	3	4.5
	Start up	0.18	0.3	0.45	0.81	0.97	1.6	1.9	2.3	3.2	4.9	6.5	8
5IK40RGN-CWE 5GN□RA ES02	1200r/min	0.65	1.1	1.6	2.7	3.3	4.8	5.8	6.9	9.6	10	10	10
	90r/min	0.14	0.24	0.36	0.6	0.71	1.1	1.3	1.5	2.1	3.2	4.2	6.3
	Start up	0.36	0.6	0.9	1.5	1.8	2.7	3.2	3.9	5.4	8.1	10	10
5IK60RGU-CWE 5GU□RA ES02	1200r/min	1	1.7	2.5	4.2	5	8.3	8.8	10.6	14.7	20	20	20
	90r/min	0.35	0.58	0.87	1.4	1.7	2.9	3.1	3.7	5.1	7.7	10.2	12.8
	Start up	0.58	0.96	1.4	2.4	2.9	4.8	5.2	6.2	8.6	13	17.3	20

Speed Control Motors ES Type / Reversible Motor

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	36	50	75	100	150
4RK25RGN-CWE	1200r/min	0.25	0.41	0.77	1.5	1.8	3.1	3.7	4.4	6.2	8	8	8
4GN□RH	90r/min	0.14	0.23	0.43	0.86	1	1.7	2.1	2.5	3.5	5.2	6.9	8
ES02	Start up	0.19	0.31	0.58	1	1.3	2.1	2.5	3	4.2	6.3	8	8
5RK40RGN-CWE	1200r/min	0.48	0.8	1.6	2.7	3.3	4.8	5.8	6.9	9.6	10	10	10
5GN□RH	90r/min	0.26	0.43	0.87	1.4	1.7	2.6	3.1	3.7	5.1	7.7	10	10
ES02	Start up	0.41	0.68	1.2	2	2.4	3.6	4.4	5.2	7.3	10	10	10
5RK60RGU-CWE	1200r/min	0.74	1.2	2.5	4.2	5	8.3	8.8	10.6	14.7	20	20	20
5GU□RH	90r/min	0.41	0.68	1.4	2.3	2.8	4.6	4.9	5.8	8.1	12.2	16.2	20
ES02	Start up	0.69	1.2	2.1	3.5	4.1	6.9	7.5	8.9	12.4	18.6	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	36	50	75	100	150
4RK25RGN-CWE	1200r/min	0.31	0.51	0.77	1.5	1.8	3.1	3.7	4.4	6.2	8	8	8
4GN□RA	90r/min	0.17	0.29	0.43	0.86	1	1.7	2.1	2.5	3.5	5.2	6.9	8
ES02	Start up	0.23	0.39	0.58	1	1.3	2.1	2.5	3	4.2	6.3	8	8
5RK40RGN-CWE	1200r/min	0.65	1.1	1.6	2.7	3.3	4.8	5.8	6.9	9.6	10	10	10
5GN□RA	90r/min	0.35	0.58	0.87	1.4	1.7	2.6	3.1	3.7	5.1	7.7	10	10
ES02	Start up	0.49	0.81	1.2	2	2.4	3.6	4.4	5.2	7.3	10	10	10
5RK60RGN-CWE	1200r/min	1	1.7	2.5	4.2	5	8.3	8.8	10.6	14.7	20	20	20
5GU□RA	90r/min	0.55	0.92	1.4	2.3	2.8	4.6	4.9	5.8	8.1	12.2	16.2	20
ES02	Start up	0.83	1.4	2.1	3.5	4.1	6.9	7.5	8.9	12.4	18.6	20	20

Speed Control Motors US Series

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	50	75	100	150
US425-402E/ 4GN□RH	1200r/min	0.23	0.38	0.71	1.4	1.7	2.9	3.4	5.7	8	8	8
	90r/min	0.056	0.094	0.18	0.35	0.42	0.71	0.85	1.4	2.1	2.8	4.2
	Start up	0.1	0.17	0.33	0.59	0.7	1.2	1.4	2.3	3.5	4.7	7
US540-402E/ 5GN□RH	1200r/min	0.39	0.65	1.3	2.2	2.7	3.9	4.7	7.8	10	10	10
	90r/min	0.095	0.16	0.32	0.54	0.64	0.95	1.1	1.9	2.8	3.8	5.7
	Start up	0.21	0.35	0.63	1.1	1.3	1.9	2.3	3.8	5.7	7.6	10
US560-502E/ 5GU□RH	1200r/min	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.21	0.35	0.71	1.2	1.4	2.4	2.5	4.2	6.3	8.4	11
	Start up	0.36	0.6	1.1	1.8	2.2	3.6	3.9	6.5	9.7	13	16
US590-502E/ 5GU□RH	1200r/min	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.39	0.65	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.6	1	1.8	3	3.6	6	6.5	11	16	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	Gear ratio	3	5	7.5	12.5	15	25	30	50	75	100	150
US425-402E/ 4GN□RA	1200r/min	0.29	0.48	0.71	1.4	1.7	2.9	3.4	5.7	8	8	8
	90r/min	0.071	0.12	0.18	0.35	0.42	0.71	0.85	1.4	2.1	2.8	4.2
	Start up	0.13	0.22	0.33	0.59	0.7	1.2	1.4	2.3	3.5	4.7	7
US540-402E/ 5GN□RA	1200r/min	0.53	0.88	1.3	2.2	2.7	3.9	4.7	7.8	10	10	10
	90r/min	0.13	0.21	0.32	0.54	0.64	0.95	1.1	1.9	2.8	3.8	5.7
	Start up	0.25	0.42	0.63	1.1	1.3	1.9	2.3	3.8	5.7	7.6	10
US560-502E/ 5GU□RA	1200r/min	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
	90r/min	0.29	0.48	0.71	1.2	1.4	2.4	2.5	4.2	6.3	8.4	11
	Start up	0.43	0.72	1.1	1.8	2.2	3.6	3.9	6.5	9.7	13	16
US590-502E/ 5GU□RA	1200r/min	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
	90r/min	0.53	0.88	1.3	2.2	2.7	4.4	4.7	7.8	12	16	20
	Start up	0.72	1.2	1.8	3	3.6	6	6.5	11	16	20	20